

Express Mail Label No. EL975550258US

PATENTS
2287/C03/PVD/PS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Imran Hashim, Tony Chiang and Barry L. Chin
Serial No. : unknown
Filed : herewith
For : METHOD AND APPARATUS FOR FORMING IMPROVED
METAL INTERCONNECTS

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with 37 C.F.R. §§ 1.56 and 1.97,
applicants wish to call the attention of the Examiner to the
following references:

U.S. Patent No. 4,756,810, Lamont, Jr. et al.

U.S. Patent No. 4,816,126, Kamoshida et al.

U.S. Patent No. 6,110,821, Kohara et al.

U.S. Patent No. 6,291,885 B1, Cabral, Jr. et al.

U.S. Patent No. 6,375,810 B2, Hong

Foreign Art Reference No. JP61261472A2 (JP)

Foreign Art Reference No. JP4030421A2 (JP)

Foreign Art Reference No. EP 0 202 572 B1 (EP)

Fusen Chen et al., U.S. Patent Application No.
08/856,116, filed May 14, 1997, entitled "Reliability Barrier
Integration for CU Application"

These references are also listed on the accompanying
Information Disclosure Statement (Form PTO-1449). Since the
afore-mentioned references are readily available from the parent
application serial No. 09/928,891, Applicants are not providing
copies with this Information Disclosure Statement. However,
should the Examiner require additional copies, Applicants would
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Consideration of the foregoing in relation to this
patent application is respectfully requested.

Respectfully Submitted,



Brian M. Dugan, Esq.
Registration No. 41,720
Dugan & Dugan, PC
Attorneys for Applicants
(914)332-9081

Dated: 1/21/03
Tarrytown, New York

U.S. Department of Commerce, Patent and Trademark Office LIST OF RELEVANT ART CITED BY APPLICANT (Use several sheets if necessary)					Docket No.: 2287/C03/PVD/PS	Serial No.: unknown
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AL	JP61261472A2	11/19/86	JP		X <small>Abstract Only</small>			
AM	JP4030421A2	02/03/92	JP		X <small>Abstract Only</small>			
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U.S. Patent No. 5,693,563, Teong

U.S. Patent No. 5,731,2450, Joshi et al.

U.S. Patent No. 5,744,376, Chan et al.

U.S. Patent No. 5,759,906, Lou

U.S. Patent No. 5,904,565, Nguyen et al.

U.S. Patent No. 5,933,753, Simon et al.

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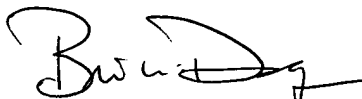
"Endpoint Detection Method for Ion Etching of Material Having a Titanium Nitride Underlayer", RESEARCH DISCLOSURE, February 1991, Number 322, (C) Kenneth Mason Publications Ltd, England

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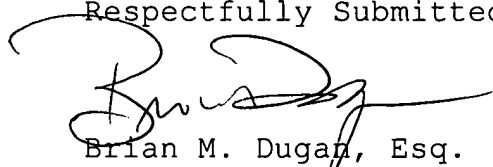
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	AB	5,178,739	01/12/93	Barnes et al.				
	AC	5,221,640	06/22/93	Sato				
	AD	5,270,264	12/14/93	Andideh et al.				
	AE	5,271,972	12/21/93	Kwok et al.				
	AF	5,302,266	04/12/94	Grabarz et al.				
	AG	5,303,139	04/12/94	Mark				
	AH	5,308,793	05/03/94	Taguchi et al.				
	AI	5,346,600	09/13/94	Nieh et al.				
	AJ	5,350,479	09/27/94	Collins et al.				
	AK	5,354,712	10/11/94	Ho et al.				
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		Document Number	Date	Country	Class	Subclass	Yes	No
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	AS	"SypherLine by MTi", November, 1985, Semiconductor International						
	AT	H.P. Bader et al., "Planarization by Radio-Frequency Bias Sputtering of Aluminum as Studied Experimentally and by Computer Simulation", Nov./Dec. 1985, J.Vac.Sci.Technol.A3(6), pp. 2167-2171						
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					Applicant(s): Imran Hashim, Tony Chiang and Barry L. Chin			
					Filing Date: herewith		Group: Unknown	

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	AA	5,371,042	Ong				
	AB	5,482,611	Helmer et al.				
	AC	5,510,011	Okamura et al.				
	AD	5,512,150	Bourez et al.				
	AE	5,516,399	Balconi-Lamica et al.				
	AF	5,534,460	Tseng et al.				
	AG	5,584,974	Sellers				
	AH	5,585,974	Shrinkle				
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	AJ	5,591,269	Arami et al.				
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AS	D.W. Skelly et al., "Significant Improvement in Step Coverage Using Bias Sputtered Aluminum", May/June, 1986, J.Vac.Sci.Technol. A4(3), pp. 457-460	
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*Examiner Initial		Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,639,357	06/17/97	Xu			
	AB	5,651,865	07/29/97	Sellers			
	AC	5,654,232	08/05/97	Gardner			
	AD	5,674,787	10/07/97	Zhao et al.			
	AE	5,685,961	11/11/97	Pourrezaei et al.			
	AF	5,685,959	11/11/97	Bourez et al.			
	AG	5,718,813	02/17/98	Drummond et al.			
	AH	5,725,739	03/10/98	Hu			
	AI	5,770,023	06/23/98	Sellers			
	AJ	5,780,357	07/14/98	Xu et al.			
	AK	5,807,467	09/15/98	Givens et al.			

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	AS	P. Kidd, "A Magnetically Confined and Electron Cyclotron Resonance Heated Plasma Machine for Coating and Ion Surface Modification Use", May/June 1991, J.Vac.Sci.Technol.A., pp. 466-473
	AT	J. Musil, "Unbalanced Magnetrons and New Sputtering Systems with Enhanced Plasma Ionization", May/June 1991, J.Vac.Sci.Technol.A9(3), pp. 1171-1177

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*Examiner Initial	Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA	5,810,963	Tomioka				
	AB	5,810,982	Sellers				
	AC	5,846,332	Zhao et al.				
	AD	5,858,184	Fu et al.				
	AE	5,863,392	Drummond et al.				
	AF	5,865,961	Yokoyama et al.				
	AG	5,897,752	Hong et al.				
	AH	5,968,327	Kobayashi et al.				
	AI	5,976,327	Tanaka				
	AJ	5,985,762	Geffken et al.				
	AK	6,001,420	Mosely et al.				

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	AB	6,051,114	04/18/00	Yao et al.			
	AC	6,080,284	06/27/00	Miyaura			
	AD	6,106,625	08/22/00	Koai et al.			
	AE	6,136,693	10/24/00	Chan et al.			
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	AR	W.M. Holber, "Copper Deposition by Electron Cyclotron Resonance Plasma", Nov./Dec. 1993, J.Vac.Sci.Technol.A 11(6), pp. 2903-2910
	AS	W.D. Getty, "Size-Scalable, 2.45-GHz Electron Cyclotron Resonance Plasma Source Using Permanent Magnets and Waveguide Coupling", Jan/Feb. 1994, J.Vac.Sci.Technol B 12(1), pp. 408-415
	AT	S. Hamaguchi et al., "Simulations of Trench-illing pro les Under Ionized Magnetron Sputter Metal Deposition", Mar./Apr. 1995, J.Vac.Sci., Technol.B., Vol. 13, No. 2, pp. 183-191

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AS	I.S. Park et al., "A Novel A1-Reflow Process Using Surface Modification by the ECR Plasma Treatment and Its Application to the 256Mbit DRAM", 1994, IEEE, pp. 109-112	
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	AS	Y. Shacham-Diamand, "Electroless Copper Deposition for ULSI", 1995, Thin Solid Films, pp. 93-103
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